Alternatives to waterborne sanitation - a comparative study – limits and potentials

Platzer, C., Hoffmann, H., Ticona, E. (2008)

Content - Summary

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Alternatives to Waterborne Sanitation – a Comparative Study – Limits and Potentials

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The study analyses the potentials and limits of alternatives to waterborne sanitation. It is based on a comparison between a waterborne sanitation system (WS) and a dry sanitation solution (DS). It suggests that the introduction of urine diversion dry toilets (UDDT) in Peru would enable water to be provided for 50% more inhabitants, a very important aspect for Peru which is heavily affected by climate change, with a predicted sharp decrease in water availability in future.

A cost comparison compares a situation of 10,000 households. The comparison is done from the point of view of a sanitation company, as the authors strongly believe that only an organised municipal sanitation service (whether or not privately operated) can assure a sustainable solution. The company would need to invest about US $1,038–US $1,227 per household for a waterborne system, while the dry sanitation system is estimated at US $935 per household.

A management service model is proposed, in which the sanitation company collects dried faeces and stored urine every three months. Operational costs are calculated to include transport, handling in a central plant, administration costs and education costs. Based on the actual water tariff in Lima, the dry system is calculated to give each household an advantage of US $1 a month.

In total, a very clear advantage for the DS can be shown and it is essential to implement large scale solutions in order to be able to optimise the proposed systems.

The comparison does not take into account economic advantages which could be generated by selling the urine. Based on the price of fertiliser in agricultural use in Lima and surrounding cities this saving would be about US $20 per household per annum. In the authors' view, the marketing of such products should not be done by the sanitation company but by agriculture organisations. An additional desert area of 160 ha could be irrigated by using all the saved or treated water in the DS model.

Introduction

Peru is one of the countries most affected by climate change, especially in the coastal desert area. This area makes up less than 15% of the total Peruvian territory, but is where 60% of the population live. The capital, Lima (8 million inhabitants) is situated in one of the world's driest areas, where 1.3 million inhabitants don't have access to the public water supply (MVCS 2006) and live with less than 25 litres (L) of water per day, and around 3 million people use latrines, which is not an adequate sanitation solution for urban areas.

A similar situation can be encountered in many Peruvian coastal cities. Officially 20% of the Peruvian wastewater passes through a treatment plant, but the reality is much worse, because the treatment plants often are not operated correctly, so that most of the collected wastewater (57%) is discharged almost untreated. Problems with water quality in rivers and costal areas are dramatically rising.

In the past, there have been attempts to introduce dry sanitation (DS) concepts in Lima, but they failed due to a series of problems, as described in Oswald & Hoffmann (2007). The main reasons were the absence of a sustainable management model, unresolved technical problems and the perceptions of the people who were expected to use the system, who regarded the urine diversion dry toilets (UDDT) as a temporary solution. It was very clear that even poor people in marginal settlements do not have the interest, time or patience to care for their toilets or to use the products. There was no interest in the ecological dimension, as people are

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Bibliographic information

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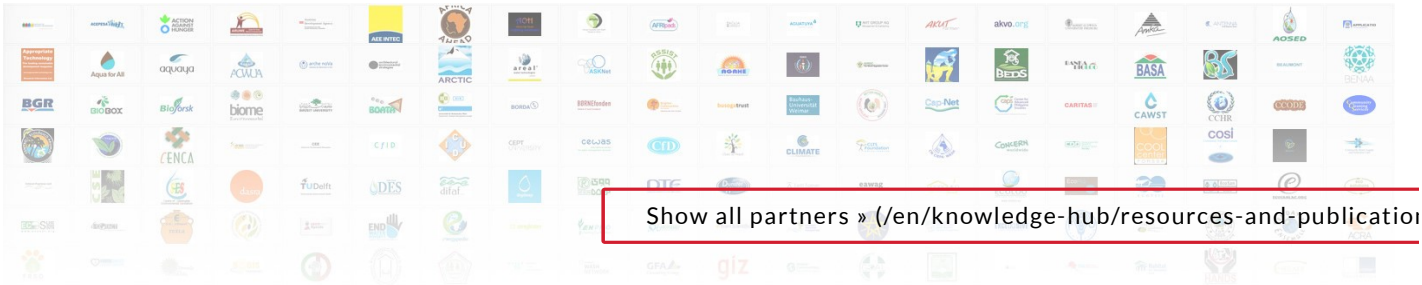

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